

LIGNE 4
BusWay



Chronobus



proxivan



Busway and Chronobus in Nantes Métropole

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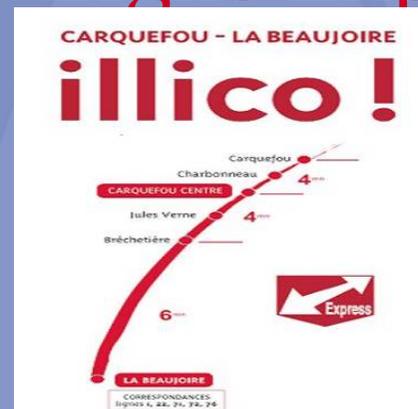
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SERVICE D'INFORMATION EN TEMPS RÉEL



TRAMWAY



Ligne Express'



ter PAYS DE LA LOIRE



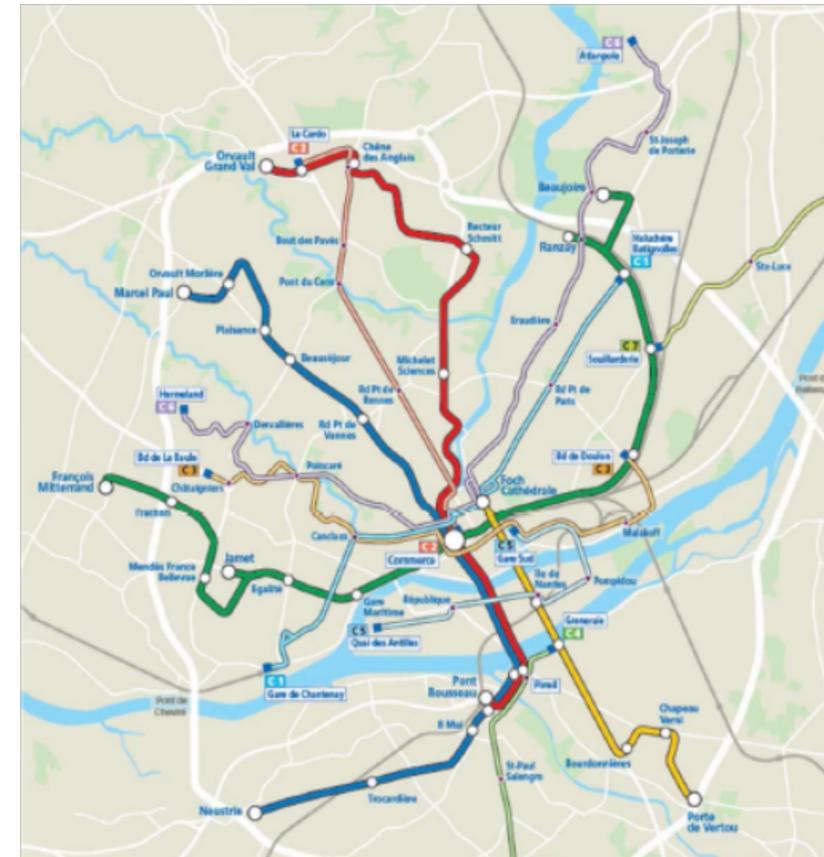
navibus



VI. 2: The BUSWAY



- All platforms on dedicated lanes with a 21 km/h average speed
- Priority at all crossroads
- Stations like trams' with real-time information and ticket vending machines
- Dedicated vehicles: CNG articulated buses
- High frequency level: 3' at peak hours
- Porte de Vertou / City centre in only 20'



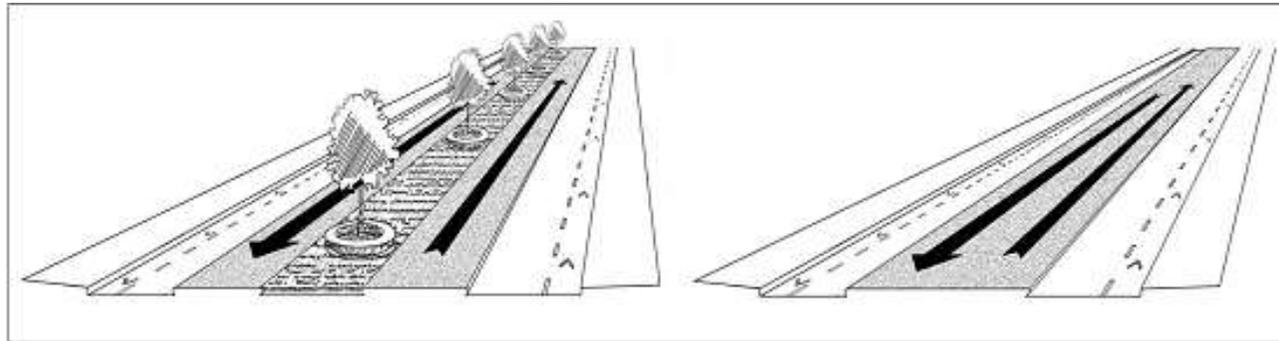
➔ **Length Busway network: 7 km**
(Commissioning: November, 2006)

➔ **Current ridership :**
35 000 trips / day

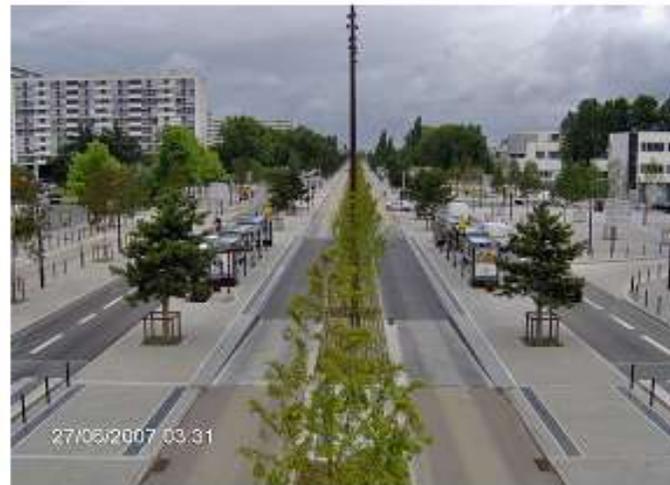
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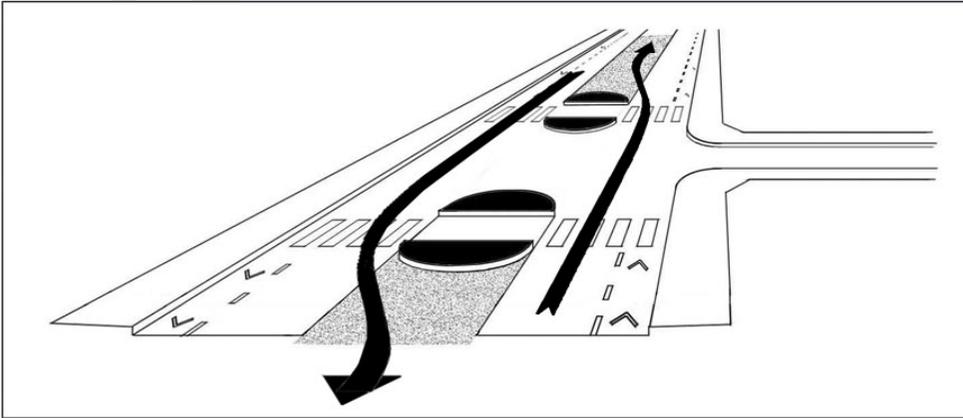
CONCEPTION

Using the features that made the tram a success:
A dedicated lane along virtually the entire route



Dedicated central lane with and without central island





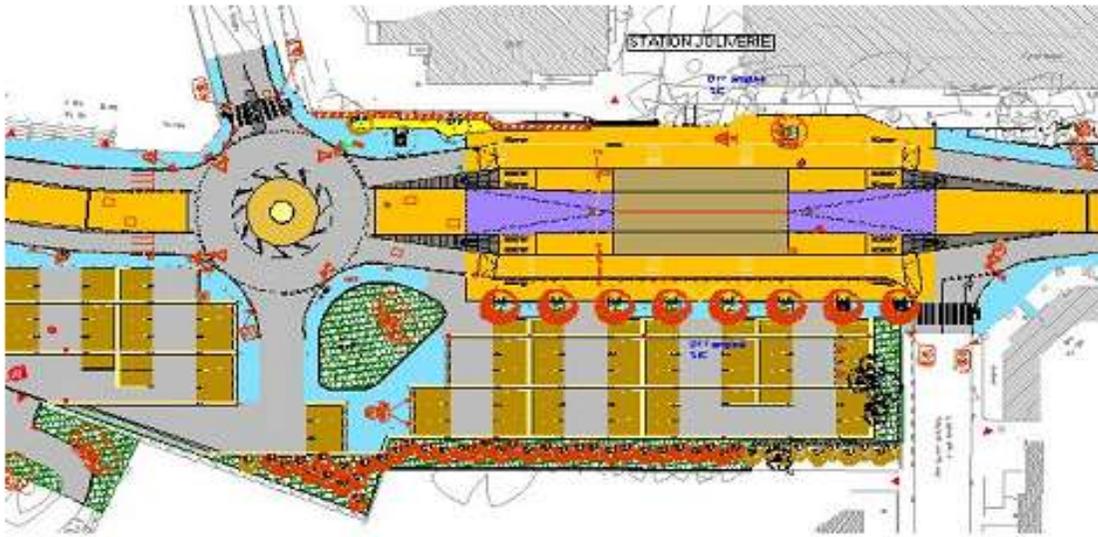
Alternating dedicated central lane



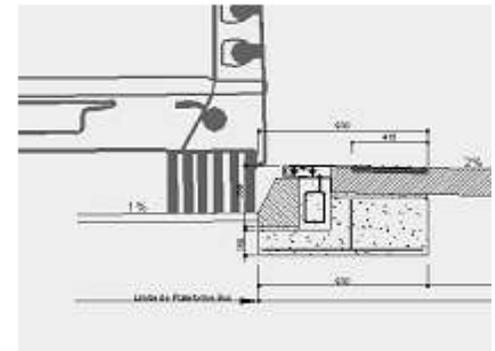
- **Crossroads : priority given to the BusWay**
- **Limited disturbance on traffic flow thanks to a specific signal system (R17 + Driving Assistance Signal and R24 lights)**



➤ The creation of actual stations (optimisation of passengers interchanging time, shelters, equipments, ...)



- **Accessibility with no guidance system : the issue of station docking and the station/vehicle interface with specific granite curbstones**



➤ Standard low-floor articulated bus running on CNG



Animated line diagrams



Screens providing connection times with the other lines



A closed area for the driver



Soft and indirect lighting



Comfortable seats



tram-like sliding doors



Mini exit ramp doors 2 and 3

Insulation with double-glazed windows

Before / After works



24/02/15



VI.3 The Chronobus

2009 : Political choice for the PT network development: rationalization of the low demand lines (-1Mkm/y) and creation of a BHLS network of 10 lines (+2Mkm/y)



- Save time by an average 2 to 10 minutes
- Buses every 5 to 8 minutes at rush hour and every 10 to 12 minutes off-peak



- Travel time is virtually identical, whether during rush hour or off-peak
- Buses run from 5 a.m. to 12.30 a.m. (until 2.30 a.m. during the night of Saturday to Sunday) like the tram and normal bus lines



- Buses run all year round
- Easy access from bus stops
- Lines visually identified: vehicles, stations, maps, numbering

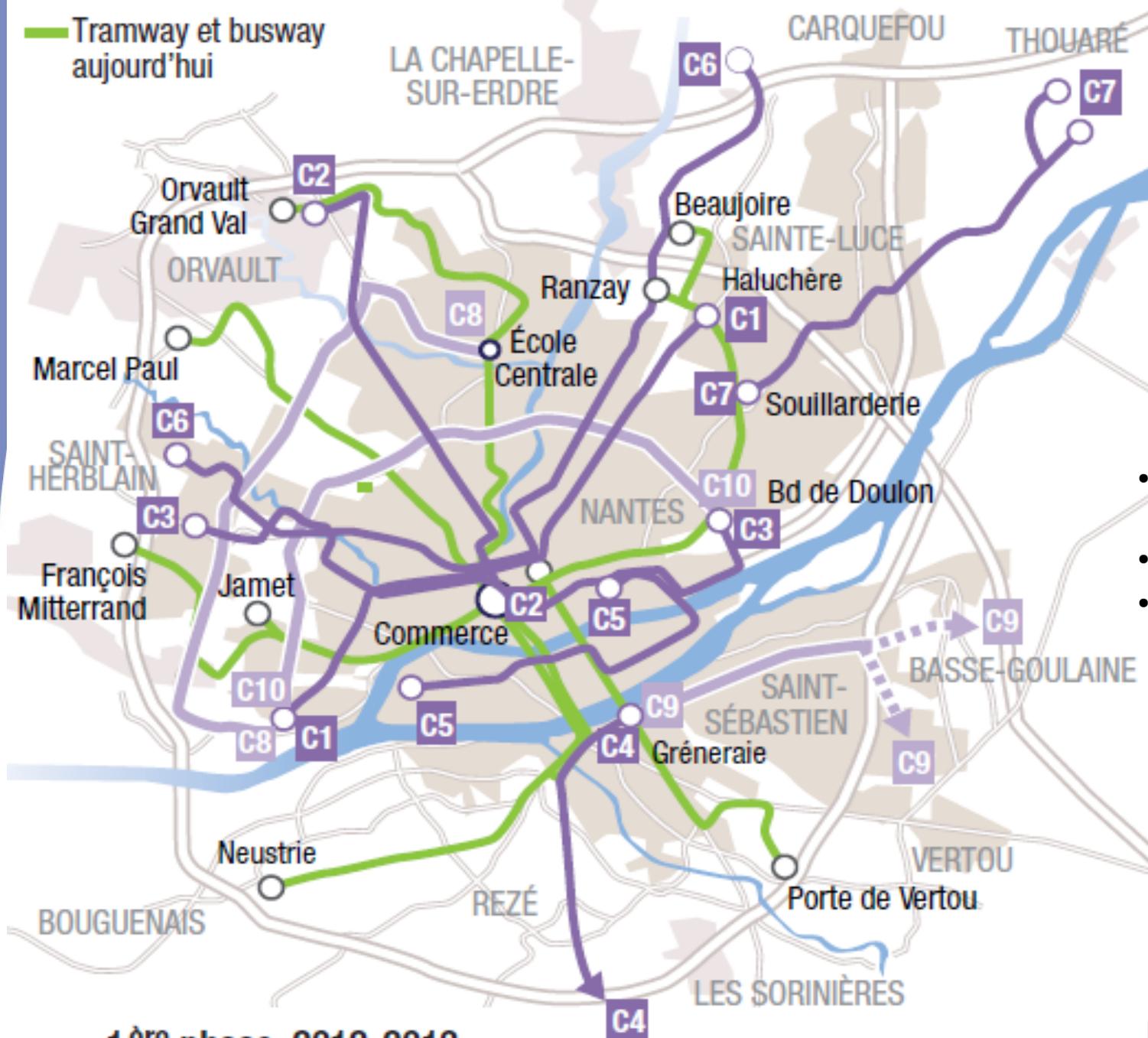




The Chronobus expansion

Le réseau Chronobus

Tramway et busway
aujourd'hui



- 4 lines commissioned in October 2012
- 3 lines in September 2013
- 3 remaining lines after 2014.

1ère phase, 2012-2013



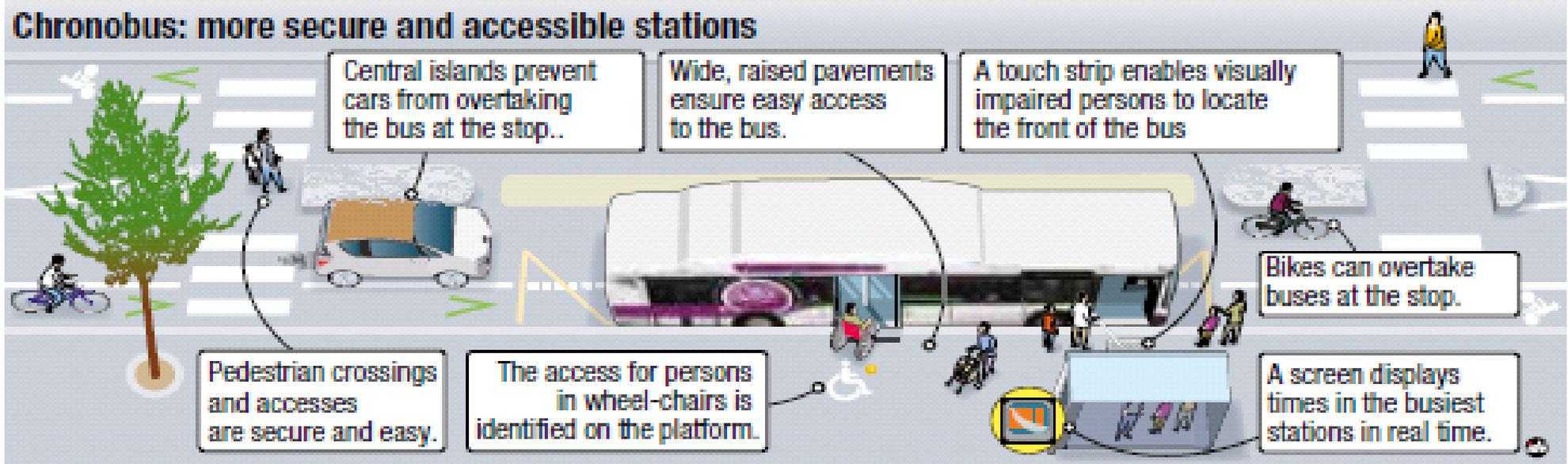
The Chronobus conception principles

- Analyze the functioning of bus lines and identify the encountered difficulties
- Concentrate the efforts on this difficulties (and not on the whole itinerary)
- Use different insertion tools, adapted to each context
- Encourage alternative modes (pedestrians, cyclists and buses) and constrain general traffic
- When possible, renew the underground networks and roads before implementing the Chronobus lines
- Consult the citizens by organizing public meetings and use the bus flexibility to occasionally adapt the project to local needs



The Chronobus insertion tools

Chronobus: more secure and accessible stations



Transformation of intersections with traffic lights into roundabouts. Roundabouts improve traffic flow and safety.



Widening of certain roads to 6m. Buses can pass each other more easily and user safety is improved.



Priority at lights via radio. All intersections are equipped with a new system giving priority at traffic lights using a short-range radio.

Calmer environment at stops the bus dictates the rhythm of the traffic. Car drivers must wait patiently behind the bus.



The Chronobus insertion tools

Dedicated lanes
reserved for public
transport and emergency
vehicles in both directions.



Bus lanes
open to bikes, taxis and
other public transport
vehicles.

20.10.2011



Time-based single lanes
dedicated lanes whose
direction alternates
according to the time of
day: used in one direction
in the morning and
in the other direction
in the evening.



Spot-check single lane
dedicated lanes used
when there is no bus
coming in the other
direction.





The Chronobus insertion tools



Temporary bus lanes : from 16h to 19h, only buses and cyclists can use the street to avoid congestion in a complex cross roads in peripheral city centers.

Limited traffic zone in the city center : allowed only for buses, cyclists and authorized vehicles (residents and deliveries) to avoid transit circulation.

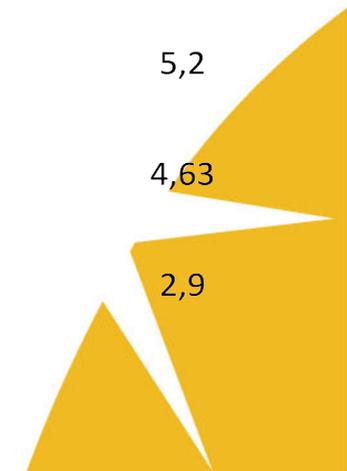




Chronobus: the results

- Since September 2012: the demand increased of +25% on new Chronobus lines and it continues to grow. A strong use during nights and week-ends.
- A follow-up which allows to adapt the public road network to maintain the level of service.

	Demand			Ponctuality		Travels/km		
	2012/2013	2013/2014	Evolution	2012/2013	2013/2014	2011/2012	2012/2013	2013/2014
C1	17 017	19 020	+ 12 %	78%	90%	7,8 <i>(L21-23)</i>	7,2	8,1
C2	10 720	12 766	+ 19 %	76%	85%	5,5 <i>(L32)</i>	5,9	6,9
C3	9 631	12 603	+ 31 %	82%	84%	5,9 <i>(L56)</i>	5,5	6
C4	6 718	7 737	+ 15 %	90%	85%	3,6 <i>(L94)</i>	3,3	3,6
C5		8 919			95%			5,2
C6	10166 <i>(L22 2011-12)</i>	15 002 13 200*	+ 48 % + 30 %*	75% <i>(L22 2011-12)</i>	82%	6,2 <i>(L22)</i>	4,56 <i>(L22)</i>	4,63
C7	2104 <i>(L92 2011-12)</i>	4 541	+ 117 %		92%	2,2 <i>(L92)</i>	2 <i>(L92)</i>	2,9





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Thank you for your attention



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